

SECTION 16 - TRENCHING AND TRENCH RESURFACING

16-1 GENERAL

Excavation, backfilling and trench resurfacing shall be done in a manner such that both pedestrian and vehicular traffic are inconvenienced as little as possible.

16-2 MATERIAL

Pavement sections and all excavated backfill shall conform to the requirements on standard drawings of these Standard Specifications.

Concrete shall be of the class as shown on plans and shall conform to the requirements of Section 90 of the State Standard Specifications.

Asphalt concrete for surfacing will be Type B and shall be manufactured and placed in accordance with the relevant provisions of Section 39 of the State Standard Specifications using 1/2 inch maximum medium size aggregate.

Aggregate base shall be furnished and placed in accordance with Section 26 of the State Standard Specifications for Class 2 Aggregate Base using 3/4-inch maximum size aggregate.

Liquid asphalt for prime coat shall be grade SC70 or SC250 as directed by the Engineer. Paint binder and fog seal as specified by the Engineer shall be furnished and applied in accordance with Sections 39 and 94 of the State Standard Specifications.

16-3 TRENCHING

Excavation for pipe shall be in open cut except as indicated and shall include the removal of all materials or objects of any nature that would interfere with the execution of the Work. The trench shall be braced and drained when necessary so that Workmen may work therein safely and efficiently.

The safety regulations as set forth in the State of California "Construction Safety Orders", Trench Construction Safety Orders, issued by the Division of Industrial Safety, shall be complied with in all Work.

The location of subsurface obstructions found in the field may necessitate a variance in the depth of the pipe, which depth shall be determined in the field by the Engineer. Where underground or surface structures are shown on the plans, the location, depth and dimensions of such structures and utility lines are believed to be reasonably correct but are not guaranteed. Such structures are shown for the information of the Contractor, but information so given is not to be construed as a representation that such structures will in all cases be found or encountered just where shown, or that they represent all the structures or utility lines which may be encountered. It shall be the responsibility of the Contractor to locate all substructures whether they are shown on the plans or not. The completed trench shall be uniformly graded to a flat bottom conforming to the grade to which the pipe is to be laid. The pipe shall be laid upon sound soil cut true and even

so the barrel of the pipe will be in full bearing for its entire length. Any portion of the trench excavated below the approved grade shall be corrected and brought up to grade with an approved material thoroughly compacted.

Rock or hardpan located within six (6) inches of the bottom and sides of the trench shall be removed when installing pipe sizes up to twenty-four (24) inches in diameter. The pipe shall not be permitted to rest on masonry walls, piers, foundations or other unyielding subterranean structures encountered in the excavation. Such material shall be removed and the trench backfilled to the pipe grade with select material, thoroughly compacted. No additional payment will be made for such excavation or refill. Where a firm foundation is not encountered due to soft, spongy or other unsuitable material, all of such unsuitable material under the pipe and for a width of at least 1/2 diameter on each side of the pipe shall be removed to a depth as directed by the Engineer and refilled with pit run gravel as directed by the Engineer.

The Contractor shall be responsible for the location of subsurface obstructions in the field and shall notify the Engineer immediately if changes in pipe grade are required to avoid them.

Material excavated from the trench shall be placed so as to offer the minimum obstructions to traffic. Ditches shall be kept clean or other provisions made for the handling of drainage and/or irrigation water.

The width of the trench at the top of the pipe shall not be greater than 16 inches more than the outside diameter of the barrel of the pipe to be laid therein.

Bell holes are required for all belled pipe and shall be excavated at each location where pipes are to be joined. Bell holes shall be of sufficient and adequate size to permit ease in making the joint and so the bell does not rest on the bottom of the bell hole.

All Work of excavation or backfilling in a public street shall be done as quickly as possible. Not more than 600 linear feet of trench shall be open ahead of any sewer, pipe line or conduit in any street or alley, except that upon written permission of the City Engineer such trenches may be opened for a distance of not more than 1,200 linear feet where public traffic will not be seriously inconvenienced. No excavation or trench shall be opened and left open more than twenty-four hours before the installation of the sewer, pipe line or conduit which is to be placed in said, excavation or trench; and the backfilling of said excavation or trench shall be completed within twenty-four hours after the installation of the facility for which the excavation was made, excepting that portion of the trench or excavation to be used for connecting the extension of the installation, provided said portion is adequately barricaded and protected and backfilled the following working day. Excavations or trenches for poured in place concrete pipe may remain open for a period not to exceed seven days, providing said excavations or trenches are adequately barricaded, fenced, or plated with steel plate of adequate thickness.

Where an excavation or trench crosses a street or alley intersection, the excavation and backfilling shall be completed within twenty-four hours, or bridging capable of supporting vehicular truck traffic shall be provided for access across said excavation or trench. The Engineer may designate a passage be provided at any point deemed necessary for the public health, safety and convenience. Access to hospitals, fire stations, police stations, and fire hydrants must be maintained at all times.

An excavation within a street or alley for the purpose of boring or jacking pits or for the installation of structures shall be properly barricaded and protected and may be left open for a period of seven days and then must be backfilled, unless an extension of time is approved by the Engineer in writing.

Within 24 hours after the trench has been backfilled, all street crossings shall be surfaced with temporary surfacing of 1-1/2 inches of cold mix surfacing mixed in a central plant. Such surfacing shall remain in place and maintained until the permanent surfacing is to be placed.

16-4 Trench Resurfacing

Prior to placing aggregate base or concrete, the edges of the trench will be trimmed to a straight line and cleaned of all foreign material.

The aggregate base shall be prepared in conformance with the requirements of Section 26 of the State Standard Specifications. Aggregate base shall be placed, rolled and compacted to 95 percent compaction as determined by ASTM 1557.

Concrete base shall be as required as shown on plans and with 1-inch maximum aggregate, conforming to and placed in accordance with Section 90 of the State Standard Specifications. An addition of calcium chloride up to two percent by weight of the cement may be required in the Special Conditions to be added to the concrete mix. The top surface of the concrete shall be given a rough rake finish while the mix is still Workable with the corrugations parallel with the trench.

Contractor shall not complete surface paving until subbase has been inspected and approved.

Violation of this paragraph shall be cause for rejection of that portion of paving involved. Prime coat shall be applied in accordance with Section 39 of the State Standard Specifications.

The Contractor shall place and maintain all valve and manhole rings and covers at grade during paving operations in accordance with the Standard Drawings.

Asphalt concrete surface course shall conform to and be placed in accordance with Section 39 of the State Standard Specifications. The top of the new surfacing shall be flush with a line struck off from two points on the existing road surface, one each side of the trench, to a maximum tolerance of 1/8 inch, plus or minus. A deviation from this maximum allowable tolerance shall be cause for rejection of the surfacing. AR 4000 asphalt shall be used.

Paint binder shall be furnished and applied in accordance with the provisions of Sections 39 and 94 of the State Standard Specifications. Upon completion of paving, a fog coat of a penetration type emulsion (RSI) is to be applied over the complete length of the new pavement. Prior to the application, the surface to be sealed shall be thoroughly cleaned of all dirt and loose material by sweeping. The rate of application of this material shall not be less than 0.05 gallon per square yard of area.

Before final inspection of the Work, the Contractor shall clean the entire job site of all dirt, aggregate, concrete, asphalt, and other foreign substances. All parts of the Work shall be left in a neat and presentable condition.

The Contractor shall at all times maintain the Work area in such a manner so as not to create a nuisance. The Engineer may require the Contractor to sweep, water or a combination of both if conditions in his judgment so warrant.

16-5 TRENCH COMPACTION

All backfill shall have a relative compaction of 90% to within twenty-four inches (24 ") of the surface and ninety-five percent (95%) within the top twenty-four inches (24") as determined by ASTM 1557.

16-6 PAYMENT

Payment for trenching shall be included in the unit price of installing the pipe or conduit to be installed in said trench.

Payment for trench resurfacing shall be per square foot of trench area or linear foot of trench.